

What is claimed is:

1. A battery, comprising:
- a casing including
 - an inner tube with two ends, wherein the inner tube is designed to completely surround a hollow core;
 - an outer tube with a first and second ends; wherein the outer tube surrounds the inner tube, and
 - first and second end plates, the first end plate connected to the first end of the inner tube, and a second end plate connected to the second end of the inner tube, wherein the outer tube, inner tube, and end plates surround a sealed annular space;
 - one cathode electrode,
 - one anode electrode, and
 - an separator between the electrodes;
 - wherein the cathode, anode, and separator are housed in the casing, and the inner tube is designed to collapse into the hollow core when a pressure inside the annular space exceeds a predetermined collapsing pressure.
2. The battery of claim 1, wherein a connection between the inner tube and at least one of the end plates is designed to break when the pressure inside the annular space exceeds a predetermined breaking pressure.

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3. The battery of claim 2, wherein the connection between the inner tube and at least one of the end plates is a weld.
4. The battery of claim 2, wherein the breaking of the connection allows a venting of the pressure within the battery.
5. The battery of claim 2, wherein the venting takes place at the connection between the inner tube and both the first and second end plates.
6. The battery of claim 4, wherein the pressure inside the annular space is caused by expansion of gases within the battery , and the venting releases the gases.
7. The battery of claim 2, wherein at least one of the end plates comprises an inner cylinder with two ends; an outer cylinder with two ends, wherein the outer cylinder is formed around the inner cylinder and is of the same length as the inner cylinder; and a plate that extends between one of the ends of the outer cylinder and one of the ends of the inner cylinder.
8. The battery of claim 2, wherein the predetermined breaking pressure is greater than the predetermined collapsing pressure.

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9. The battery of claim 1, wherein the cathode electrode, the anode electrode, and the separator form a spiral within the annular space, and the separator provides a fixed spacing between the electrodes.
10. The battery of claim 9, wherein the collapsing of the tube increases the spacing between the electrodes.
11. The battery of claim 10, wherein the increase in spacing between the electrodes reduces a current between the electrodes.
12. The battery of claim 2, wherein the inner tube is ribless.
13. The battery of claim 2, wherein connections between both ends of the ends of the inner tube and the end plates are designed to break at the predetermined breaking pressure.
14. The battery of claim 2, wherein the battery is a lithium ion cell.
15. A battery, comprising:
a casing including
an inner tube with two ends, wherein the inner tube is designed to completely surround a hollow core;

5 an outer tube with a first and second ends; wherein the outer tube surrounds the inner tube, and

 first and second end plates, the first end plate connected to the first end of the inner tube, and a second end plate connected to the second end of the inner tube, wherein the outer tube, inner tube, and end plates surround a sealed annular space;

10 one cathode electrode;

 one anode electrode;

 an separator between the electrodes;

 a positive terminal connected to the anode,

 and a conductive member connected to the positive terminal that extends through the first end plate and into the hollow core;

 wherein the cathode, anode and separator are housed in the casing and the positive terminal extends out from the annular space through the first end plate, and the cathode is connected to the casing,

 wherein the inner tube is designed to collapse into the hollow core when a pressure inside
20 the annular space exceeds a predetermined collapsing pressure, and the inner tube makes contact with the conductive member when the inner tube collapses.

16. The battery of claim 15, wherein the conductive member is made of conductive material and the inner tube is made of conductive material.

17. The battery of claim 16, wherein conductive member is a wire.
18. The battery of claim 17, wherein the wire has an end portion of increased diameter located within the hollow core, and the inner tube makes contact with the end portion when the inner tube collapses into the hollow core.
19. The battery of claim 15, wherein part of the conductive member is insulated.
20. The battery of claim 15, further comprising a support, wherein the support positions the resistance wire within the hollow core.
21. The battery of claim 15, wherein the contact between the inner tube and conductive member creates a short circuit between the anode and cathode.
22. The battery of claim 21, wherein the short circuit reduces a voltage within the annular space.
23. The battery of claim 15, wherein a connection between the inner tube and at least one of the end plates is designed to break when the pressure inside the annular space exceeds a predetermined breaking pressure.

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24. The battery of claim 22, wherein the predetermined breaking pressure is greater than the predetermined collapsing pressure.

25. The battery of claim 23, the connection between the inner tube and one of the end plates^a is weld.

26. The battery of claim 23, wherein connections between both ends of the inner tube and the end plates are designed to collapse at the predetermined breaking pressure.

27. The battery of claim 15, wherein the battery is a lithium ion cell.

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